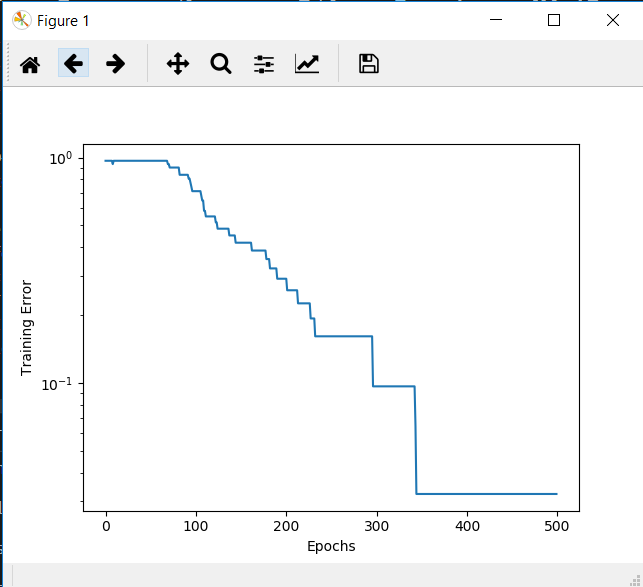
COMP4107 – Neural Networks

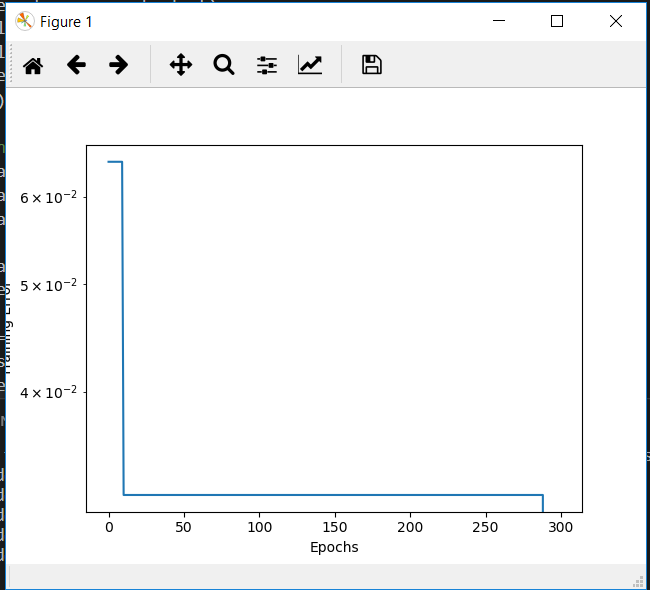
Assignment 2 Answers

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2. b) In the following graph, we can confirm that Fig.13 from the assignment is a reasonable representation of performance for the optimal number of hidden layer neurons. We can see that at the first hundred epochs, the model does not learn much, then there are a couple sudden drops from approximately 100 to 250 epochs and it flattens out at the end. This makes sense as the network is trained on the ideal data with zero noise. The network should start off at a very high error rate as it should not recognize anything. As more epochs pass, the model should train to the point where it should have very low error rate as shown below.



The second figure is a graph of training error at each epoch after we have trained on the ideal set and noisy data. The graph confirms that after training on the noisy data, it forgot a bit of the noiseless data and as such the error at the beginning is a bit higher, then it drops after training on the noiseless data again.



2 c) As seen in the graph below, we can produce the recognition accuracy shown in Fig. 14. In general, the model trained with noise should always outperform the model that was trained without noise.

